

REMARKS

Upon entry of the present amendment, claims 1-26 will remain pending in the above-identified application and stand ready for further action on the merits. Claims 1, 11 and 16 have been amended and claim 27 has been cancelled.

The amendments made herein to the claims do not incorporate new matter into the application as originally filed. For example, support for the amendments to claims 1, 11 and 16 occurs in the present specification at page 27, lines 9-13.

Accordingly, entry of the present amendment is respectfully requested.

Drawings Objection

One (1) sheet of replacement drawings is submitted herewith. Figures 3A and 3B have been corrected according to the request set forth on the PTO-948 Form attached to the Office Action mailed April 11, 2006. One (1) Replacement Sheet of drawings is attached hereto.

Claim Objection

Claim 27 has been objected to under the provisions of 37 CFR § 1.75(c) as being an improper multiply dependent claim. Reconsideration and withdraw of this objection is respectfully requested based on the cancellation of claim 27 herein.

Claim Rejections – 35 USC § 103(a)

Claims 1-27 have been rejected under the provisions of 35 USC § 103(a) as being unpatentable over JP '972 (JP-8-217972) in view of Kasai et al. US '052 (US 5,109,052),

Hamada et al. US '282 (US 5,283,282), **Kubo et al. US '902** (US 5,470,902), **Kakegawa et al. US '292** (US 5,455,292), **JP '271** (JP-11-181271), **JP '903** (JP-9-169903), **JP '398** (JP-6-184398) and **JP '682** (JP-5-706682). Reconsideration and withdraw of this rejection is respectfully requested based on the following considerations.

As described in the Applicants prior reply of February 14, 2006, an important advantage of the present invention is satisfying a market demand for a relay block, which has a complicated structure and does not have melt wrinkles on a surface of the molded article. As a result of the detailed study, the present inventors have found that a resin composition with noticeably high flowability as recited in the present claims can satisfy the market demand.

It is necessary to control a reduced viscosity of polyphenylene ether in a resin composition within a specific range in order to impart noticeably high flowability to the resin composition. The preferable range of a reduced viscosity of polyphenylene ether is 0.40-0.45 dl/g as described in page 27, lines 9-13 of the present specification.

A comparison of the results of Example 3 with those of Example 4 in the present specification reveals the advantageous effects caused by using polyphenylene ether having a reduced viscosity falling within 0.40-0.45 dl/g. (*Please Note, after entry of the instant amendment, Example 4 is changed to the position of a comparative example.*) In other words, in Example 4 wherein polyphenylene ether has a reduced viscosity not falling within the specific range, the deflection temperature under load becomes much more deteriorated and the degree of deformation of bus bar portion becomes much more greater than those of Example 3 (*see the results of Table 1 in the present specification*). This clearly demonstrates that it is critical to keep a reduced viscosity of polyphenylene ether in a resin

composition within a specific range.

However, each of the references recited in the Office Action neither discloses nor suggests that if a resin composition comprising polyphenylene ether having a reduced viscosity falling within the specific range is used, the resin composition can exhibit sufficient heat resistance and high flowability enough to form a relay block which has a complicated structure and does not have melt wrinkles on a surface of the molded article, and the molded article can have a suppressed degree of deformation. Each of the cited references (excluding JP-5-70682) just describes a very broad range of reduced viscosity of polyphenylene ether, while JP-5-70682 is quite silent about a viscosity value of polyphenylene ether in the resin composition.

For the Examiner's further study of the references, applicants are filing an **IDS** on even date herewith, which contains mechanical translations of JP-9-169903A and JP-11-181271A.

Each of the polyphenylene ethers used in the working examples of the cited references (excluding JP-5-70682) has a reduced viscosity, which is much greater than the upper limit of the specific range defined in the present claims. Incidentally, conversion of viscosity values between reduced viscosity (as used in the present invention) and limiting viscosity or intrinsic viscosity (used in the cited references) is explained below for the Examiner's convenience.

In conclusion, it would be unobvious for a person skilled in the art to arrive at the inventions recited in the present claims, wherein the specific range of reduced viscosity is recited, from any combinations of the cited references.

Additional Comments

For the Examiner's convenience and understanding, the following comments are additionally presented concerning the "conversion of viscosity values between reduced viscosity and limiting viscosity or intrinsic viscosity"

The document "POLYMER PROCESS ENGINEERING", which is enclosed herewith, is submitted as an Exhibit for explaining conversion of viscosity values between reduced viscosity and limiting viscosity or intrinsic viscosity. This document is hereinafter referred to as "Document 1".

The term "reduced viscosity" used for the above-mentioned amendments of claims indicates a viscosity value measured by Ubbelohde's viscosity tube using a 0.5 g/dl chloroform solution at 30°C, as described in page 27, lines 11-12 of the present specification. This corresponds to the viscosity abbreviated as " η sp/c" shown in page 291 of the Document 1.

On the other hand, in the cited references (excluding JP-11-181271), viscosity of polyphenylene ether is represented as "limiting viscosity" or "intrinsic viscosity". These terms have the same value as shown in Table 6.7 in page 291 of the Document 1, and they are represented as [η].

A relationship between the term "limiting viscosity" or "intrinsic viscosity" and the term "reduced viscosity" is expressed as the Formula 6.49 in page 293 of the Document 1.

$$\eta \text{ sp/c} = [\eta] + k [\eta]^2 C \quad [\text{Formula 6.49}]$$

As explained in the paragraph below the Formula 6.49 in the Document 1, in the graph of a relationship between reduced viscosity (η sp/c) and concentration of (C), the y-intercept of the line means a value of reduced viscosity. That is, [η] is a viscosity value, which does not depend on concentration of a solution.

Further, the Formula 6.49 means that values of η sp/c are greater than values of $[\eta]$ (i.e., η sp/c $> [\eta]$). This relationship between η sp/c and $[\eta]$ is represented by "EXHIBIT FIGURE 1" which is also submitted herewith as an Exhibit.

EXHIBIT FIGURE 1 shows that the range "0.40-0.45 dl/g" of η sp/c recited in the present claims corresponds to the range "0.37-0.41 dl/g" of $[\eta]$, which is a noticeably lower range of viscosity. In this calculation, a k value of 0.3-0.5 is put in the Formula 6.49, since this range is often used as described in the last paragraph in page 293 of the Document 1.

Obviousness-Type Double Patenting Rejection

At page 3 of the Office Action, claims 1-27 have been rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-9 of US 6,984,678. Reconsideration and withdraw of this rejection is respectfully requested based on the following considerations.

Enclosed herewith and/or filed on even date herewith is a Terminal Disclaimer, which effectively overcomes the obvious-type double patenting rejection over claims 1-9 of US 6,984,678.

CONCLUSION

Based on the amendments and remarks set forth herein, and the filing herewith of a Replacement drawing sheet, and a Terminal Disclaimer, the Examiner is respectfully requested to issue a Notice of Allowance, clearly indicating that each of instantly pending claims 1-26 is allowed and patentable under Title 35 of the United States Code.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John W. Bailey (Reg. No. 32,881) at the telephone number below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

By 

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Enclosures: **Terminal Disclaimer** over US 6,984,678; and
Replacement Sheet of Drawings – Figures 3A and 3B;

Exhibits: EXHIBIT FIGURE 1;
DOCUMENT 1, Eric A. Grulke, "Polymer Process Engineering", pages 290-295,
PTR Prentice Hall (1994)